The trend towards transcontinental sourcing: investigating the motives

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ABSTRACT,

Global sourcing gained a lot of attention over the last 30 years. Initially, mainly cost motives were determinants for deciding to source globally, but more recent research highlighted additional motives. Investigating the trend in which a shift towards sourcing outside of Europe is observed, is continued in this research. A dissection is made between continental and transcontinental sourcing, with a Dutch point of view (geographically). In this way, a better understanding of the motives behind the shift towards transcontinental sourcing is brought into existence. Six hypotheses were tested via a five-point Likert scale survey in Qualtrics. The data was translated into Excel and finally analyzed with SmartPLS 3 software. Analysis showed that volume advantages, price-performance-ratio and technical exclusivity outside of Europe could be positively related towards transcontinental sourcing. Surprisingly, skill availability was negatively related towards transcontinental sourcing, suggesting that continental suppliers offer better (unique) skills compared to transcontinental suppliers. However, no ultimate truth is claimed in this study. Given the small sample size, this study can be considered as an experiential test which should serve inspiration for future research.

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Keywords

Global sourcing, motives, transcontinental sourcing, continental sourcing, Smart PLS 3, Survey

1. INTRODUCTION: DIFFERENT MOTIVES LEAD TO AN INCREASE OF TRANSCONTINENTAL SOURCING AND A DECREASE OF CONTINENTAL SOURCING

Increased global sourcing of manufacturing and service practices has been a prominent part of the restructuring of firms' supply chains in the 1990s and beyond (Kotabe et al., 2008, p. 259). A recent study discovered a sideward movement of international trade in the past decade, which can be differentiated into an increase in transcontinental sourcing and a relative decline of intra-EU sourcing (Körber & Schiele, 2021a, p.219). In another study, there is an increased attractiveness for far-shore destinations in Asia over near-shore locations in Eastern Europe observed, which supports the trend just discussed. (Kinkel, 2012, p. 707). For this study it is essential to differentiate between continental and transcontinental sourcing as different types of global sourcing. Elaboration on the dissection of both sourcing types will follow in the next chapter.

In this paper, sourcing is defined as the process of fulfilling organizational buying needs by managing a supply base through strategic and transactional interactions with suppliers, wherever they may be located, in alignment with corporate goals (Guinipero et al., 2019, p. 1).

Heading for the first time into global sourcing brings the company in a disadvantage of being foreign, in comparison with the domestic firms. The firm needs to adapt to the local environment to work efficiently. Local knowledge such as the understanding of local market, cultural and environmental conditions, etc. is crucial information to be gathered (Inkpen & Beamish, 1997; Wei et al., 2006, p. 47). Also, proper global sourcing is not easy to achieve. A lack of understanding of the risks, dynamics, hidden costs, firm-internal barriers and decision-making biases have been observed in practices. (Stanczyk et al., 2017, pp. 42-55)

Although, there are several risks bounded to global sourcing, it is widely suggested that international sourcing improves firms' performance, especially their cost-effectiveness (Trent & Monczka, 2003; Kotabe & Mol, 2007, p. 3). "The search for low cost has led to the development of global sourcing strategies and pushed many companies to outsource manufacturing to low-income countries" (Arigo, 2021, p. 75). Global sourcing enhances a company's ability to provide good products at acceptable prices and to operate at levels which permit it to replace its capital. This suggests that a firm's decision to source its requirements globally serves several purposes (Alguire et al., 1994, p. 62).

More factors affecting international location decisions were tested in 2003. Five significant factors which influenced the location decision were costs, labour characteristics, economic factors, proximity to market/customers and quality of life (Maccarthy & Atthirawong, 2003, pp. 794-815). In this study, it is hypothesized that there are certain motives for transcontinental sourcing.

Hypothesis: Special characteristics lead to an increase of transcontinental sourcing and a decrease of intra-EU sourcing.

In this research the hypothesis of volume, price-performance ratio, (exclusive) technology, availability/capacity and market penetration advantages outside of Europe, which could be motives for European buyer organization to switch sourcing locations are tested. Included, is the hypothesized motive of global tenureship: whether difficulties with backshoring is a reason to keep sourcing outside of Europe. These hypotheses are a result of/initiated by the (draft) research paper of T. Körber and prof. dr. H. Schiele (Körber & Schiele, 2021b, p. 13)

The goal of this research is to gain better insight about the recent trend of the shift towards transcontinental sourcing. Via interviews with Dutch and German companies this phenomenon is investigated. Both qualitative and quantitative empirical research are included in the interviews, being part of the international sourcing bachelor thesis circle at the University of Twente.

The introduction is followed by dissecting the different sourcing types, describing (hypothesized) the motives for transcontinental sourcing, the method, results, conclusions and finally the limitations and possible future research.

2. THREE SOURCING LEVELS: LOCAL, CONTINENTAL AND TRANSCONTINENTAL SOURCING

Sourcing occurs in different settings and locations. Each buyer has to acquire their resources and not all resources are available at local suppliers. Sourcing is a crucial component of purchasing and supply chain management. Since resources can be sourced at multiple locations, these departments are tasked with making decisions where to source. Various models, like the Supply Location Decision-Making Approach (SLDM), are created to help managers make these difficult sourcing decisions (Sirilertsuwan et al., 2020, p. 5). There can be sourced domestically (local) and globally (continental and transcontinental). A Dutch point of view is considered in this study, which means that local sourcing is defined as sourcing within the Netherlands, continental sourcing as sourcing with suppliers in the EU and transcontinental sourcing as sourcing with suppliers outside the EU. As a buyer organization it could be difficult to choose between these sourcing types. An explanation of each sourcing type is provided in the upcoming paragraph.

2.1 Local sourcing: Buying domestically

Local sourcing or domestic sourcing is used when customers and their suppliers are located in the same nation (Jin, 2005, p. 278). This type of sourcing should be used when a close collaboration between partners is required. Advantages are short distances, same cultural backgrounds, currency and language, and a low risk for disruption of the supply chain (Ivanov et al, 2019, pp. 122-123). Local sourcing, in comparison with overseas sourcing, is characterized by a short and deterministic lead time (Yin et al, 2018, p .259). The advantage of a shorter lead time is that it increases the firm's agility. Agility in this aspect increases customer service and lowers inventory cost (Jin, 2004, pp. 1292-1300). As companies strive to grow and achieve competitive advantage, local sourcing may be too limited. It is suggested to look for opportunities outside of the domestic borders.

2.2 Continental sourcing: Buying within Europe

Indeed, one of the main reasons for companies to deviate from local sourcing, and to choose for global sourcing (EU or transcontinental), is the greater availability of certain products outside of their domestic country (Cho & Kang, 2001, p. 545). EU sourcing is described as sourcing within the EU (intra-EU sourcing). As of today, the European Union exists of 27 member states. Trading/cooperation between these states is attractive for many firms in the EU, because of common legislations and policies (Hanf & Soetendorp, 2014, p. 2; Körber & Schiele, 2021a, p. 5). In addition, the free trade zone of the European

Union results in stronger collaboration, lower customs and political integration of the member states (Felbermayr et al., 2018, pp. 335-351).

Providing quality products to consumers is of high importance in the competitive business environment. Established firm reputation as a quality leader and fostered product loyalty are an effect of the offered high quality products. As an example, Germany is known to have a good reputation as high quality sources, especially in the areas of consumer electronics and automobiles (Cho & Kang, 2001, pp. 544-545). The characteristics of sourcing within the EU seem to be favorable, however recent research (Körber & Schiele, 2021a, p. 224) discovered a decrease (5.3%) of intra-EU trade over the period 2003-2019. Next paragraph gives an introduction about possible reasons for this observation.

2.3 Transcontinental sourcing: Buying outside of Europe

Transcontinental sourcing can be defined as international sourcing from other continents (Körber & Schiele, 2021b, p. 4). Some (buyer) firms take it one step further and source with a high share of important suppliers located on other continents, called remote sourcing (Schiele et al., 2021, p.61). Although, the transcontinental trade numbers increased over the period of 2003-2019, this sourcing type brings its own risks and challenges such as transportation delays, cultural and language barriers, foreign exchange rate fluctuations (which could be hedged), tariff barriers, nationalism, lack of inventory management and other business practices and political and economic stability (Cho & Kang, 2001, p. 546). Also, in relation with European sourcing, transcontinental sourcing experiences a larger influence of time-zone differences, legal framework differences and cultural factors (Körber & Schiele, 2021b, p. 4). To highlight the implications of choosing between global and local sourcing, consider the Suez Canal obstruction in March 2021. Being a fresh example, the blockade emphasizes one of the downsides of transcontinental sourcing. A higher chance of transportation delays expressed itself in a 6 days and 7 hours during obstruction for trade between Europe, Asia and the Middle East.

With some of the downsides being discussed, European companies still opt for transcontinental sourcing over local or intra-EU sourcing. In reality, there have been observations of a weakeningg intra-EU trade and an increasing transcontinental trade (Eurostat, 2021; Koerber & Schiele, 2021b, p. 224). Motives in favor of transcontinental sourcing are explained in the next session.

3. MOTIVES FOR TRANSCONTINENTAL SOURCING

3.1 Volume: Attractive volume advantages outside of Europe

Research about global sourcing versus domestic sourcing came to the conclusion that, in terms of sales volume, global sourcing firms had significantly larger (7-fold) sales volumes than domestic sourcing firms (Jin, 2005, p. 281). Although the research takes an US perspective, it helps clarifying the motive for transcontinental sourcing. Furthermore, there are findings in which firms with large sales volume tend to source globally because they have access to the most reliable factories and agents (Christerson & Appelbaum, 1995, p. 1366). Due to additional high costs associated with global sourcing (shipping, duty, etc.), only companies with large sales volume can take advantage of the economies of scale, which offsets the additional high costs"(Christerson & Appelbaum, 1995; Jin, 2005, p. 281).

The following citation suggests additional benefits of importing larger volumes. "Firms with large import volumes achieved significantly more in obtaining more service enhancement (better delivery, customer service and product availability) then firms with small import volumes did. This may reflect the fact that a large import volume gives a buying firm a superior bargaining position which the firm can use to demand higher service enhancement from its partners. Large import volumes could also entail more contractual and relational assurance to make sure of service enhancement by the buying firms, since it could mean more importance of the transaction on the part of buyers as well" (Cho & Kang, 2001, p. 558).

Hypothesis 1: Volume advantages outside of Europe, influence the trend towards transcontinental sourcing positively

3.2 Price-Performance ratio: Transcontinental price-performance ratios are more attractive than in Europe

Supplier selection is a key activity of the strategic sourcing department. Evaluating suppliers is often done by using multiple criteria. The most important dimensions in the supplier selection process (in the manufacturing industries) are often quality and cost reduction. (Gupta & Gupta, 2021, p. 4). Firms try to find their own way of managing the sourcing processes which fits their strategy best. Because of a highly competitive environment many manufacturers start to either produce in lower-cost locations or outsource components and finished products from lower-cost producers (Kotabe & Murray, 2004, pp. 7-8). Since wages are often significantly lower in developing countries, al lot of distinct products can be procured at lower prices from these countries than from domestic sources (Purchasing, 1996; Barbee, 1998; Cho & Kang, 2001, p. 544). For example in Belgian industries where intra-industry trade is relatively low, imports from low-wage countries are found to exert a strong competitive effect, which raises the likelihood of exit of firms in these industries (Coucke & Sleuwaegen, 2008, p. 1). In other words, the lower costs (in low-wage countries) reduces intra-EU trade and increases transcontinental sourcing.

One way to reduce cost/ to attain a good price-performance ratio is to offshore manufacturing activities. "Lead firms can offshore manufacturing activities through foreign direct investment (FDI) and thus maintain ownership, by contracting out production to foreign licencees, or by offshoring the activities independent suppliers" (Strange & Magnani, 2018, p. 5). This way, being a way of outsourcing, could result in lower production costs and increases the price-performance ratio.

Hypothesis 2: Better price-performance ratios outside of Europe influence the trend towards transcontinental sourcing positively

3.3 (Exclusive) technology: There is exclusive technology offered outside of Europe

Companies increasingly outsource to gain access to suppliers' capabilities (Barney, 1999; Kotabe & Murray, 2004, pp. 7-8). The sourcing strategy requires close coordination among R&D, manufacturing, and marketing activities across national boundaries to work (Kotabe & Helsen, 2004; Kotabe & Murray, 2004, p. 8). To get access to unique technologies from China, being a relationship-focused culture, it is important to establish and maintain interpersonal and inter-organizational relationships (Giannakis et al., 2012; Jia et al., 2014a; Huo et al., 2018; Virtanen et al., 2021, p. 2). Since not all firms have the resources to invest in such a relationship, intermediaries can be approached to undermine the problem of a lack of resources.

Superior technology is a valuable and sustainable competitive advantage factor (Porter, 1990; Jin, 2005, p. 279). Innovative suppliers are relied on as strategic assets for a lot of modern companies. These technologies provided by the strategic partners (innovative suppliers) could be a source of competitive advantage (Kotabe & Murray, 2018, p. 368). What also happens is the diffusion of indigenous knowledge: Multinational firms can benefit from indigenous knowledge diffusion in a host (developing) country so that there can be two-way productivity spill overs between foreign and local firms even in the developing world. Indigenous knowledge diffusion contributes to productivity enhancement in foreign subsidiaries, in this case (Wei et al., 2006, p. 46).

Hypothesis 3: Exclusive technology offered outside of Europe influences the trend towards transcontinental sourcing positively

3.4 Availability/Capacity: A motive to source trancontinentally is to overcome capacity constraints in Europe

One reason for offshoring would be to overcome capacity constraints in Europe. Availability is a critical factor that motivates sourcing on a global basis. Domestic buyers often rely on foreign sources simply because the desired products are not available locally (Cho & Kang, 2001, p. 545). Capacities can have a significant impact on location decisions, and therefore, on supply chain performance (Cortinhal et al., 2019, p. 575). Kinkel and Maloca's (2009) study supports the European motive for transcontinental sourcing. In a survey that was held regarding offshoring and backshoring, results showed that overcoming capacity constraints was one of the highly influential reasons for offshoring (Kinkel & Maloca, 2009, pp. 154-165).

Hypothesis 4: Offered availability/capacity outside of Europe influences the trend towards transcontinental sourcing positively.

3.5 Market penetration: Companies source outside of Europe to potentially penetrate these markets

Local market size and its (actual or expected) growth rate significantly affect sourcing location decisions (Ancarani et al., 2015, p. 142). In this case, where the supplier is already located transcontinentally, the buyer company may choose to start selling (final) products in that region. "The search for distant suppliers and the delocalization of production stages can allow input sourcing at more favorable cost conditions, but also access to markets, especially emerging ones, and integration into global networks" (Capasso et al., 2013, p. 466)

Timing a multinational firm's entry into a new country is a pivotal decision with long-term impact on the firm's overall performance (Islam et al., 2022, p. 1). One of the drivers for market entry is market potential/size. This driver has to do with the size of the market and the amount of sales, profits, etc. that can be obtained from entry and throughout the presence of firms in that market or in a planning period (Gaston-Breton & Martin, 2011, p. 271). Important to locate the supplier in a customer-based attractive environment. Like demographical: is it a country where they desire for example innovative (the newest) products. "Most international commerce is carried out by multinational firms, which use their foreign affiliates both to serve the market of the host country and to export to other markets outside the host country"(Tintelnot, 2017, p. 157). Also, sourcing requirements from suppliers located in in other nations may facilitate local market penetration (Porter, 1990, p. 14).

Hypothesis 5: Market penetration motives outside of Europe positively influence the trend towards transcontinental sourcing.

3.6 Global tenureship: It is difficult to backshore for companies that source on a transcontinental basis

In the presence of the COVID-19 pandemic, firms have been re-evaluating the location and governance of their global supply chains with the intention of increasing supply chain resilience through backshoring and internalization (Gereffi, 2020; Ancari et al., 2021, pp. 1435-1449). However, backshoring barriers first have to be overcome.

When a firm considers backshoring they risk losing (local) customers and some resources that are exclusively available / are easier to access in the offshore location (Kinkel & Maloca, 2009, pp. 1435-1449). The chance of losing valuable competencies of the manufacturing facilities and its employees is another barrier for backshoring (Ellram et al., 2013, pp. 14-22). It is probably to late to reshore for some companies; one reason argued are the high costs associated with backshoring (Wiesman et al., 2017, pp. 15-42). Timing could be a costly thing, but deciding for a new manufacture location is another. For many firms it is a complex decision to geographically locate a new manufacturer. Companies often experience difficulties in finding sufficient and all-compassing information to ensure a well informed decision (Arlbjørn & Mikkelsen, 2014, pp. 60-62).

Earlier this paragraph, there is spoken of situations and barriers that make it difficult, but not impossible to backshore. There are other influences which are not necessarily barriers to backshoring, but rather delay the process. Factors that influence the duration of foreign ventures are industry specific characteristics, home and host country specific characteristics and company and investment characteristics (Ancarani et al., 2015, p. 146). And in terms of global tenure ship, these characteristics could delay the process of backshoring. Companies that already managed such practices have a higher chance of doing it again. "It can be argued that firms with past experiences in production relocation or backshoring activities are more likely to take up such activities again than firms with no past experience in this specific arena" (Kinkel, 2012, p. 701)

Hypothesis 6: Global tenureship outside of Europe positively influences the trend towards transcontinental sourcing.

Figure 1 provides an overview of the hypotheses and the research model.

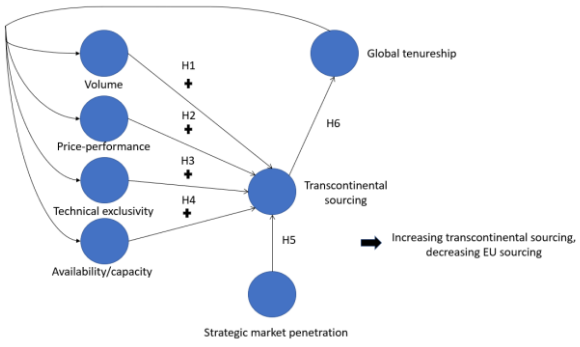

Figure 1: The hypothesized transcontinental model

4. METHOD: SURVEY

The qualitative/quantitative empirical data for this study was collected via both online and physical surveys with buyer companies in the EU. There was no selection criteria other than the demand for international sourcing, preferably outside of the EU. Each member of the international sourcing bachelor thesis group contacted purchasing/sourcing departments of companies via mails, calls and messages. During the contacting, an

explanation of our research and an indication of our interview-layout was provided. Each individual planned a meeting with a sourcing/purchasing specialist, either physically or online, during the period between May 15th and June 3rd after confirmation of the company's participation. Over the following weeks, a reminder would be sent for the interview.

4.1 Survey design

4.1.1 Nature of respondents

Initially, the target was to gather at least 25 (survey) samples, however only 21, exclusively, German and Dutch respondents finalized the survey. The interviewed companies (Appendix 1) operate in a varied number of industries, including industries such as the automotive (16%) and plastics (16%) industries.

The sourcing strategies are important for testing the hypotheses of the motives for transcontinental sourcing. Two short summaries of the respondents' country of origin and their sourcing strategies are provided in figures 2 and 3 respectively respectively.

Interviewed companies; Country of origin	Percentage
The Netherlands	68%
Germany	32%

Figure 2: The distribution of the interviewed companies' country of origin

Sourcing strategy; Intra-EU or Transcontinental?	Percentage
Intra-EU	44%
Trancontinental	4%
Both	52%

Figure 3: The distribution of the interviewed firms' sourcing types

4.1.2 Survey design: The survey consists of two open questions and multiple statements answered via a Likert scale.

Being part of the BSc international sourcing circle, resulted in making one semi-structured open interview. Each member prepared an unique interview part for own purposes, resulting in an interview consisting of five separate parts. Hence, it is called a semi-structured open interview.

For investigating the shift towards transcontinental sourcing, a survey was composed to test the motives for transcontinental sourcing. To start, two quantitative open questions were conducted to get a better understanding of the sourcing type, whether transcontinental or continental (since not all of our respondents sourced transcontinentally). The first question was about the location (country) of the supplier. If the respondent's firm sourced transcontinentally, the respondent had to fill in the country of the transcontinental supplier. The second open question asked the respondent if the supplier replaced a (continental) supplier in the last 15 years. The period of the last 15 years is considered, because a recent trend is investigated in this research.

The major part of this survey consists of qualitative statements to test the hypotheses via a Likert scale. Each individual hypothesis is tested via four statements. The four items were measured by five-point Likert-type scales for all variables ranging between (1) 'strongly disagree' and (5) 'strongly agree'. The application of a five-point Likert-type scale was secured to determine the degree of to which the interviewees agreed or disagreed with the items included in the survey relating to volume, price-performance, technical exclusivity, capacity, strategic market penetration and global tenureship outside of Europe in being motives for transcontinental sourcing.

There was a focus on the clarity of this survey: the survey had to be simple, clear and understandable for the interviewees. Each member of the thesis circle 'tested' the complete interview individually and commented any kind of shortcomings.

The first round of interviews provided some great feedback about the duration and clarity of the individual interview sections. Subsequently, a short meeting with the bachelor thesis circle was planned to discuss (and implement) the feedback points.

4.2 Analysis with SmartPLS 3: Using the partial least square method

4.2.1 Preparation of the data

The data of the surveys were imported into Excel. 'Strongly disagree' was being given a value of 1 through 'strongly agree' being given a value of 5. Also, a continental supplier is given the value of 1 and transcontinental a value of 5 (Appendix 2). The item labels also had to be rewritten in unique words, because SmartPlS 3 did not accept labels with the same words being used (the labels could only exist of unique words).

4.2.2 SmartPLS 3

This study used structural equation modelling: partial least square (SEM-PLS). PLS-SEM/SEM-PLS is a method for structural equation modeling that allows estimation of complex cause-effect relationships in path models with latent variables. SEM is a powerful multivariate technique that measures direct and indirect effects and encompasses multiple regressions (Bollen, 1989; Anjum & Chai, 2020, p. 6). "Different from CB-SEM, PLS-SEM can be utilized with much smaller sample sizes, even when models are highly complex" (Hair et al, 2014, pp. 108-109). Also, PLS-SEM achieves higher levels of statistical power and demonstrates much better convergence behavior than CB-SEM in such situations (Reinartz et al., 2019; Henseler, 2010; Hair et al., 2014, p. 109). With a sample size of just 21 surveys, Smart PLS 3 looked like the most viable option.

4.3 Creating measures: Creating a reliable and valid model

The analysis is performed in two stages: first the outer model and second the inner model analysis.

Analyzing the outer model means running the PLS-SEM algorithm and, based on the results, evaluating the reliability and validity of the construct measures in the outer models. Starting with the assessment of the outer model ensures the researcher a valid and reliable construct, which ultimately forms the basis for the assessment of the inner model relationships (Hair et al., 2014, p. 111).

Some statements could be wrongly interpreted in the survey or some of them eventually mean something else. To create valid measurements, deleting these (negatively loaded) items or combining them to create new constructs could potentially be solutions.

Weights

	Items	Item description	AVE	Composite reliability
Transcontinental sourcing			0,769	0,943
	Type	Transcontinental/continental		
	QA1	Different time zone		
	QA2	Different legal/regulatory environment		
	QA3	Geographical far away		
	QA4	Different culture		
Volume			1	1
	QB1	Substantial volume advantages		
	QB2*	Larger facilities of production		
	QB3*	Sourcing bigger volumes		
	QB4*	Is chosen because European suppliers are too small		
Price-performance			0,616	0,762
	QC1*	offered a significant price benefit, satisfying the quality measurements		
	QC2	Price-quality ratio outperformed Europe		
	QC3	Cheap for what it offers		
	QC4*	Offers similar quality in combination with a cheaper price		
Technical solution capability**			1	1
	QD1*	Offers exclusive technology		
	QD3	Superior technical solution capability		
Skill availability**			0,798	0,887
	QD2	Technical skills not available in Europe		
	QD4	Know-how not available in Europe		
Availability			1	1
	QE1*	Helped to overcome shortages of supply		
	QE2	Had enough free capacity to serve us		
	QE3*	Has good access to scarce supplies		
	QE4*	Was the only one to offer the required product, which was not available in Europe		
Strategic market penetration			0,625	0,831
	QF1*	Is located in a strategically important market to us		
	QF2	In a country where we discuss to install production capacity		
	QF3	In a country where we sell substantial volumes		
	QF4	Interesting for strategic market penetration reasons		
Global tenureship**			0,783	0,877
	QG1	Is already serving our company with other products		
	QG2	Had a good performance in the past		
Supply development**			0,595	0,742
	QG3	Is hard to be replaced		
	QG4	Was built-up with a lot of effort by our side		

* Excluded after analysis
** New latent variable creation

Figure 4: Constructs and weights

The inner model analysis investigates the reliability and hypotheses. Via average variance extracted and the composite reliability we can check the validity and reliability of the model. As a rule of thumb and for adequate convergent, an AVE (average variance extracted) of at least 0.50 is highly recommended. Also, for the composite reliability, a value bigger than 0.70 is needed (Hair et al., 2006; Høgevold et al., 2022, p. 57). Both 'demands' are fulfilled by deleting some of the negative loadings/ creating new variables out of the indicators.

After the reliability check is done (Appendix 3), it is time to test our hypotheses. Via the path coefficients (ranging from -1 to + 1), which represent the hypothesized relationships connecting the constructs (Hair et al., 2014, p. 111), t-statistics and p values the hypotheses can be evaluated.

5. RESULTS

The first look at the Smart PLS 3 workspace was not that promising. Most AVE's and composite reliabilities were not on point. Starting with deleting the following (negative) indicators: QB2, QB3, QB4, QC1, QC4, QD1, QE1, QE3, QE4 and QF1 made the model more reliable and valid (Appendix 3). Both variables "Technical exclusivity" and "Global tenureship" had something in common: Both variables could be split up into two unique variables, resulting in 4 latent variables (In figure 4, these variables are marked with **). The latent variable "Technical exclusivity" was renamed as "Technical solution capability' existing of the item "Technical solution capability" (QD3) and that the latent variable "Skill availability" was created, existing of "Technical skills not available in Europe" (QD2) and "Know-how not available in Europe" (QD4).

The variable "Global tenureship" was diverged into the latent variables "Global tenureship", composed of the items "Located in a strategically important market" (QG1) and "In a country where we discuss to install production capacity" (QG2), and the latent variable "Supply development" composed of "A country where we want to sell substantial volumes"(QG3) and "interested because of strategic market penetration reasons"(QG4).

Results (figure 5) show insignificant path coefficients. One way to solve this problem could be to increase the sample size. Since the current sample size (n=21) is not big enough, it could be that significant values would have existed if the sample size was bigger.

Direct path coefficients

	Patch coefficients	T-statistics	P Values
Volume --> Transcontinental sourcing (H1)	0,257	0,875	0,382
Price-performance --> Transcontinental sourcing (H2)	0,275	0,698	0,486
Skill availability --> Transcontinental sourcing (H3)	-0,419	1,315	0,190
Technical solution capability --> Transcontinental sourcing (H3)	0,302	0,838	0,403
Availability --> Transcontinental sourcing (H4)	0,029	0,108	0,914
Strategic market penetration --> Transcontinental sourcing (H5)	-0,089	0,268	0,789
Trancontinental sourcing --> Supply development (H6)	-0,072	0,226	0,822
Transcontinental sourcing --> Global tenureship (H6)	0,364	1,122	0,263

Figure 5: Path coefficients, T-statistics and P-values

What initially catches the eye is the negative path coefficient of the latent variable "Skill availability" to "Transcontinental sourcing". At first, it was expected that skill availability would indicate a positive path coefficient, however this is not the case. As mentioned earlier this paragraph, "Skill availability" is composed of "Technical skills not available in Europe"(QD2) and "Know-how not available in Europe"(QD4). An interpretation of this negative path coefficient is that the interviewed firms do not think that transcontinental supply firms offer 'skills' and 'know-how' which are not available in Europe. In other words, European suppliers offer the same or better technical skills in comparison with transcontinental suppliers. One explanation for this observation is that most suppliers discussed in the survey are either located in China or in Germany. Most of the bigger companies seemed to buy commodity products (for cost efficient and volume motives) in China and the more complex products (for quality reasons) in Germany or somewhere near the firm's location.

Both Availability and Strategic market penetration motives seem not to be influential on the latent variable transcontinental sourcing. Whereas the Volume, Price-performance, Skill availability and Technical exclusivity motives are more influential on the transcontinental sourcing variable.

6. CONCLUSION AND DICUSSION

This paper contributes to a better understanding of the motives towards transcontinental sourcing. It hypothesized that volume advantage, attractive price-performance ratio's, technical exclusivity, capacity, and strategic market penetration outside of Europe were motives that influenced the trend positively towards transcontinental sourcing. Also, global tenureship was argued to hold companies back from reshoring, and, thus, influencing the shift towards transcontinental sourcing positively.

Quantitative analysis based on the collected data from multiple companies, mostly in the Netherlands and Germany, did not lead to any significant results unfortunately. Reasons could be manyfold, to start with the small sample size. Although, Smart PLS 3 is known for being capable of working with small samples, it did not lead to significant results. However, it was observed that the latent variable "Skill availability" suggests a negative correlation with transcontinental sourcing. This, being contrary of the pre-research, was a surprising yet explanatory result given the sourcing locations of the samples.

This experiment with small sample size indicates that splitting the variables "Technical exclusivity" and "Global tenureship" could be relevant. This results in splitting the initial variable "Technical exclusivity" into "Skill availability" and "Technical exclusivity", plus splitting the variable "Global tenureship" into "Global tenureship" and "Supply development". This leads to eight motives rather than the hypothesized six. Whether the new variables are named correctly, is arguable and up to future research.

A discussion could be made about the variable "Capacity" with its items. To make the latent variable reliable, three out of four indicators had been deleted. Only one item remained, whereas at least two would have been preferred. It could be argued that the questions formulated for testing the capacity motive should have been more precise/accurate. On the other hand, it could be that

the motive of capacity is not so highly influential as the motive of volume or price-performance ratio in determining sourcing locations.

It can be assumed, but has to be confirmed that the tested relations will become significant with a bigger sample size. Thus, there is no final conclusion claimed in this research. The present findings could possibly indicate a future research taking advantage of the variables hypothesized in this study. Therefore, the current study is an addition to the knowledge and understanding of the studied variables.

7. FUTURE RESEARCH AND LIMITATIONS

The current study should not be considered as anything like a final finding. Because of the small sample size, testing the hypotheses cannot claim statistical validity. It is just an experiential test which should serve as an incentive for future research. The findings of this research, such as splitting both variables "Technical exclusivity" and "Global tenureship", probably hold true with bigger sample sizes. This research could be considered as a pre-test with future aspirations.

Constraints, such as the war in Ukraine, the COVID-19 period and the many different number of industries in the sample possibly influenced the results of this research. Constructs are adapted, to ensure reliable and valid research, as a possible effect of these constraints. Future research is encouraged to evaluate constructs of the transcontinental model. Especially the deleted items of current constructs plus the created constructs (marked with * and ** respectively in Appendix 4) should be revised.

The most noteworthy limitations of this research were the durations of the interviews and the sample size. Often, the interviews took just about an hour for investigating five related topics. With more time given during the interview for this topic, it would have been possible to better investigate the motives of transcontinental sourcing. Due to the fact that more questions could have been asked. Also, the open questions were not in line with the survey questions: the researched open questions were about the same topic, but tested different hypotheses.

Another limitation was the highly representing supplier locations of both Germany and China, which given the relatively small sample size, was the major influence of the results in this analysis. A bigger sample size with a more geographically dispersed supplier selection would have given us more general results about transcontinental and continental sourcing. The last limitation mentioned, is that current research might have ignored other variables which could also have influenced the trend towards transcontinental sourcing, such as economic factors and quality of life (Maccarthy & Atthirawong, 2003, pp. 794-815).

During the interviews, there were some other directions mentioned for eventual future research. One of them is to focus on the aspect of uncertainty for determining sourcing locations in the sourcing/supply chain world. Especially the future, after Covid-19, could be interesting in this case. Some interviewees explained that they expect a more inward looking shift of sourcing. The last three years (until now, including the war in Ukraine) taught companies that uncertainty and access to supplies is key and is becoming an ever more important aspect in managing supply chains nowadays. The taught that the COVID-19 crisis did further unveil fears of supply chain vulnerability is shared by (Cohen & Lee, 20202; Ivanov & Dolgui, 2020; Ancarani, Di Mauro et al., 2021, p. 1436). Future research could focus on what the future is going/expected to look like in supply chain management. Information gathered in this study could complement earlier studies about predicting future supply chain directions. Factors/motives such as uncertainty, dependency and vulnerability that influence the geographical positioning of the supply chain could be further investigated.

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10. APPENDICES

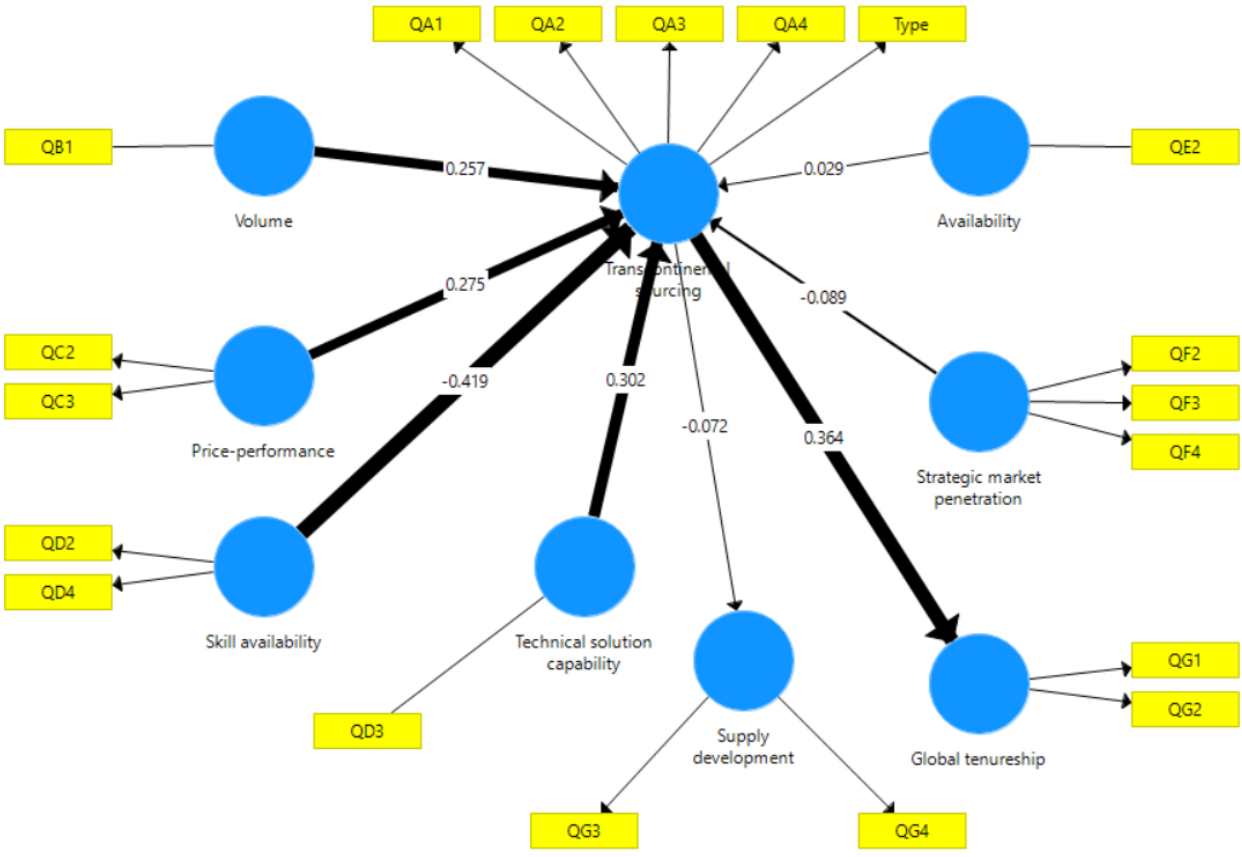
Appendix 1: Overview of interviewed companies

	Interviewed company; **Country of origin**	**Sourcing strategy;** **Intra-EU or Transcontinental?**	**Interviewed company;** **Operating industry**
A	Netherlands	Intra-EU	Building
B	Netherlands	Mainly Intra-EU	Plastics
C	Germany	Mainly Intra-EU	Mining
D	Germany	Mainly Intra-EU	EM tyre re-treading
E	Germany	Both	Food
F	Germany	Mainly Intra-EU	Plastic
G	Germany	Both	Automotive
H	Netherlands	Intra-EU	packaging
I	Netherlands	Intra-EU	Building
J	Netherlands	Both	Food
K	Netherlands	Both	Software and technology
L	Netherlands	Both	interlining
M	Netherlands	Both	Rubber and Silicone
N	Netherlands	Intra-EU	Engineering industry
O	Netherlands	Transcontinental	Chemicals industry
P	Netherlands	Intra-EU	Enrichment technology
Q	Netherlands	Both	Pharma
R	Netherlands	Both	Pharma
S	Netherlands	Both	Telecommunication
T	Netherlands	Mainly Intra-EU	Plastics
U	Netherlands	Mainly Intra-EU	Plastics
V	Netherlands	Both	Automotive
W	Germany	Both	Automotive
X	Germany	Both	Automotive
Y	Germany	Both	Telecommunication

Appendix 2: Excel file

Q1	Q2	In a different time zone	In a different legal/regulatory environment	Geographically far away from us	In a different culture	Has substantial volume advantages compared to other much smaller	Has a larger facilities of production	Offers the possibility of sourcing bigger volumes	Is chosen because European supplier s are too small	Offered a significant price benefit, satisfying the quality measurement	has a good price-quality ratio which outperformed the Eu's	Is cheap for what it offers	Offers similar quality in combination with a cheaper price	Offers exclusive technology	Has technical skills which were not available in the EU	Has superior technical solution capability	Has know-how not available in Europe	Helped to overcome shortages of supply	Had enough free capacity to serve us	Has good access to scarce suppliers	Was the only to offer the required product, which was not available in EU	Is located in a strategically important market to us	Is in a country where we discuss to install production capacity	Is in a country where we also sell or want to sell substantial volumes	Is interesting to us for a strategic market penetration reason	Is already serving our company with other products	Had a good performance in the past	Is Hard to be replaced	Was built-up with a lot of effort by our side
Type	Status	QA1	QA2	QA3	QA4	QB1	QB2	QB3	QB4	QC1	QC2	QC3	QC4	QD1	QD2	QD3	QD4	QE1	QE2	QE3	QE4	QF1	QF2	QF3	QF4	QG1	QG2	QG3	QG4
China	Replacing	4	4	4	4	4	4	4	4	5	4	4	4	3	4	2	2	4	4	4	4	4	4	4	4	3	3	4	3
Australia	Replacing	5	4	5	1	3	4	4	3	5	5	4	5	5	3	4	3	4	4	3	3	2	2	3	3	3	4	2	2
Japan	Before	5	5	5	5	4	3	2	2	1	3	1	1	4	3	4	4	4	3	4	5	1	1	1	1	5	5	5	3
China	Replacing	5	5	5	5	5	5	3	1	5	5	5	5	3	3	4	3	1	1	1	3	1	3	1	5	5	5	5	3
China	Before	5	5	5	5	5	5	5	1	5	5	5	5	3	3	3	1	3	3	3	1	5	3	5	5	5	5	5	3
China	Before	5	5	5	5	5	3	3	3	4	4	3	4	3	2	3	3	4	4	3	4	4	4	3	4	3	4	3	3
US	Before	2	2	2	2	4	4	4	2	3	4	3	4	4	3	3	3	5	4	4	3	3	3	3	3	4	4	4	3
China	Replacing	5	5	4	4	4	4	4	1	5	5	3	4	4	4	4	2	5	4	5	3	5	5	5	1	5	4	5	4
Japan	Before	5	5	5	5	3	4	5	1	4	4	3	4	1	1	3	2	2	4	3	4	4	2	4	4	1	5	3	4
China	Replacing	5	5	5	5	3	3	3	1	4	3	3	3	5	5	5	5	2	4	4	5	2	3	1	1	3	4	1	1
China	Replacing	5	4	5	5	3	3	4	1	3	2	5	2	3	1	3	1	4	4	4	4	1	1	3	2	2	1	3	1
China	Replacing	5	4	5	5	4	3	4	1	3	2	5	1	3	1	3	1	4	4	4	4	1	1	2	2	2	1	4	1
Estonia	Before	4	5	3	4	1	2	1	5	5	2	3	3	1	2	1	2	4	4	4	3	4	1	1	2	5	5	5	5
Germany	Before	1	1	1	3	2	4	4	5	3	3	3	3	4	2	3	4	3	1	1	5	3	4	1	3	3	4	1	3
Hungary	Before	1	2	3	4	5	4	5	5	4	3	2	5	2	5	2	5	2	5	3	5	5	4	1	1	4	4	2	4
Germany	Before	2	4	5	2	2	1	1	5	4	2	3	2	4	1	5	3	4	4	4	2	4	4	4	4	4	4	4	3
Belgium	Before	1	1	5	2	3	4	4	3	5	1	3	5	4	2	4	2	4	4	4	4	1	1	1	1	4	5	4	4
Germany	Replacing	1	1	2	2	3	3	3	5	3	2	3	3	4	4	4	4	5	4	4	5	2	3	3	2	1	3	5	5
Germany	Replacing	1	1	2	2	3	3	3	5	3	3	3	3	4	5	4	3	5	5	5	5	2	3	3	3	1	3	3	4
Sweden	Replacing	1	2	3	2	4	3	4	5	4	4	4	3	3	2	2	3	4	4	5	4	1	1	1	1	1	1	2	2
Germany	Before	1	1	2	2	4	5	5	5	5	3	3	4	1	5	1	5	1	1	1	5	1	1	1	1	5	4	4	4

Appendix 3: Smart-PLS 3 screenshot



Appendix 4: Construct items with validity and reliability scores

Weights

	Items	Item description	AVE	Composite reliability
Transcontinental sourcing			0,769	0,943
	Type	Transcontinental/continental		
	QA1	Different time zone		
	QA2	Different legal/regulatory environment		
	QA3	Geographical far away		
	QA4	Different culture		
Volume			1	1
	QB1	Substantial volume advantages		
	QB2*	Larger facilities of production		
	QB3*	Sourcing bigger volumes		
	QB4*	Is chosen because European suppliers are too small		
Price-performance			0,616	0,762
	QC1*	offered a significant price benefit, satisfying the quality measurements		
	QC2	Price-quality ratio outperformed Europe		
	QC3	Cheap for what it offers		
	QC4*	Offers similar quality in combination with a cheaper price		
Technical solution capability**			1	1
	QD1*	Offers exclusive technology		
	QD3	Superior technical solution capability		
Skill availability**			0,798	0,887
	QD2	Technical skills not available in Europe		
	QD4	Know-how not available in Europe		
Availability			1	1
	QE1*	Helped to overcome shortages of supply		
	QE2	Had enough free capacity to serve us		
	QE3*	Has good access to scarce supplies		
	QE4*	Was the only one to offer the required product, which was not available in Europe		
Strategic market penetration			0,625	0,831
	QF1*	Is located in a strategically important market to us		
	QF2	In a country where we discuss to install production capacity		
	QF3	In a country where we sell substantial volumes		
	QF4	Interesting for strategic market penetration reasons		
Global tenureship**			0,783	0,877
	QG1	Is already serving our company with other products		
	QG2	Had a good performance in the past		
Supply development**			0,595	0,742
	QG3	Is hard to be replaced		
	QG4	Was built-up with a lot of effort by our side		

* Excluded after analysis
** New latent variable creation